Appeal No. 2015-1408

United States Court of Appeals

for the

Federal Circuit

PENTAIR WATER POOL AND SPA, INC.,
DANFOSS LOW POWER DRIVES,

Appellants,

– v. –

HAYWARD INDUSTRIES, INC.,

Appellee.

Appeal From the United States Patent and Trademark Office
Patent Trial and Appeal Board in No. IPR2013-00285

BRIEF ON BEHALF OF APPELLEE HAYWARD INDUSTRIES, INC.

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PENTAIR WATER POOL AND SPA v.
HAYWARD INDUSTRIES, INC., 2015-1408

CERTIFICATE OF INTEREST

Pursuant to Federal Circuit Rule 47.4, Counsel for the Appellee Hayward Industries, Inc. certifies the following:

1. The full name of every party or amicus represented by me is: Hayward Industries, Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is: N/A.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are: None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are: McCarter & English, LLP: Steven E. Halpern, Scott S. Christie, Mark E. Nikolsky, Mark H. Anania, and Elina Slavin.

Dated: July 2, 2015

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STATEMENT OF RELATED CASES

This appeal is a companion case to *Pentair Water Pool and Spa, Inc. v. Hayward Industries, Inc.*, Case No. 15-1409, which similarly contests a Final Written Decision of invalidity issued by the United States Patent and Trademark Office Patent Trial and Appeal Board (the "Board") in an *inter partes* review ("IPR") proceeding concerning U.S. Patent No. 7,704,051.

Pursuant to Fed. Cir. R. 47.5(b), the Court's decision in this appeal may also affect *Pentair Water Pool and Spa, Inc., and Danfoss Drives A/S v. Hayward Industries, Inc. and Hayward Pool Products, Inc.*, Civil Action No. 5:11-CV-459 (consolidated), a district court action in the United States District Court for the Eastern District of North Carolina, in which U.S. Patent No. 8,019,479 (the "'479 patent") is asserted. That action currently is stayed pending proceedings before the Board.

STATEMENT OF JURISDICTION

This appeal arises from IPR proceeding No. IPR2013-00285 initiated by Appellee Hayward Industries, Inc. ("Hayward") before the Board concerning claim 12 of the '479 patent. The Board had jurisdiction over the IPR proceeding pursuant to 35 U.S.C. § 6.

On November 19, 2014, the Board issued its final written decision. A11-A49. On January 16, 2015, Appellants Pentair Water Pool and Spa, Inc. and Danfoss Low Power Drives (collectively, "Pentair") filed their Notice of Appeal pursuant to 35 U.S.C. §§ 141(c) and 319. A654-A659. Pentair's appeal was docketed as Case No. 15-1408. This Court has jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. § 141(c).

STATEMENT OF THE ISSUES

1. Whether the Board correctly construed the terms "is primed/is not primed" and "maximum priming time allotment" in claim 12 of the '479 patent under their respective broadest reasonable interpretations as not limited to initial startup of the pump motor.

2. Whether the Board properly determined based upon substantial evidence that claim 12 of the '479 patent is invalid as obvious over U.S. Patent No. 5,819,848 to Rasmuson *et al.* ("Rasmuson") in view of U.S. Patent No. 6,468,042 to Møller ("Møller").

STATEMENT OF THE CASE

A. Introduction

In the IPR of the '479 patent, the Board found claim 12 obvious over Rasmuson in view of Møller. As a precursor to determining obviousness, the Board construed the terms "is primed/is not primed" and "maximum priming time allotment" in claim 12 as not being limited to initial startup of the pump motor of the '479 patent.[1]

B. Claims 12 and 13 of the '479 Patent

Claim 12 of the '479 patent relates to a motorized pump having a controller with logic for identifying a loss of prime at the pump, an undesirable condition in a pumping system. The controller determines flow rate based on an input power[2] to the motor, and whether a present flow rate is above a priming flow value in order

[1] "Pb." is used herein to refer to the Principal Brief of Appellants Pentair Water Pool and Spa, Inc. and Danfoss Low Power Drives.

[2]Pentair inaccurately states that the '479 patent teaches that "*input power* 'can give information in the form of current and/or voltage as an indication of power and speed measurement of the pump motor.'" Pb. at 6 (citing A677 at 9:7-11). The cited portion of the '479 patent actually discloses that this information is provided by a "*hardware input*" rather than via input power. *See* A677 at 9:7-11. Indeed, the input power is clearly *electrical power input to the motor*, as opposed to simply the electrical current or the electrical voltage, as Pentair incorrectly asserts. *See* A703 at 1:42-55 (Møller disclosures incorporated by reference into the '479 patent (A675 at 6:17-32)); *see also Cook Biotech, Inc. v. Accel, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006) (Incorporation by reference, which is relevant to claim construction, "provides a method for integrating material from various documents into a host document...by citing such material in a manner that makes clear that the material is effectively part of the host document as if it were explicitly contained therein.").

to assess whether the system is primed. The controller indicates a priming alarm if the system is not primed before reaching a maximum priming time allotment. A679 at 14:8-19.

Claim 12 recites:

> A pumping system for at least one aquatic application, the pumping system comprising:
>
> a pump;
>
> a motor coupled to the pump; and
>
> a controller in communication with the motor, the controller determining a current flow rate based on an input power to the motor, the controller determining whether the current flow rate is above a priming flow value in order to determine whether the pumping system *is primed*, the controller indicating a priming alarm if the pumping system *is not primed* before reaching a *maximum priming time allotment*.

Id. (emphasis added).

Independent claim 13 of the ‘479 Patent, although not challenged in the proceedings before the Board, also uses derivations of the term “prime.” That claim recites a pumping system similar to that of claim 12, that is:

> a controller in communication with the motor, the controller obtaining a hardware input including at least one of input power and motor speed, the controller calculating shaft power based on the hardware input, the controller determining *priming status* based on the shaft power, the controller indicating a *priming dry alarm* if the shaft power is at least approaching zero for at least about ten seconds.

Id. at 14:24-31 (emphasis added).

C. The Prior Art

In its determination of obviousness of claim 12, the Board combined Rasmuson and Møller. The Board found that Rasmuson disclosed all of the limitations of this claim with the exception of determining a current flow rate "based on an input power to the motor." The Board concluded that the disclosure of Møller satisfied this final limitation, teaching that input power can be used to determine a pump flow rate. A27-A29.

1. Rasmuson

Rasmuson discloses a pumping system that includes a pump with a controller. A1150-A1151 at 1:4-9 & 4:35-42; A1045 at ¶ 52. A flow transducer is used to measure the flow rate of liquid being discharged by the pump, and transmits an electrical signal representative of the flow rate to the controller. A1152 at 5:11-15, 5:41-44 & 5:52-54; A1045 at ¶ 52. The controller analyzes the flow rate signal to determine if there is an abnormality present. A1152 at 5:41-61; A1045 at ¶ 52. Rasmuson discloses that one type of flow abnormality is where the pump is pumping liquid at a diminished flow rate by virtue of too much gas in the pump. A1150 at 1:14-20 & 1:58-64; A1152 at 5:41-61; A1154 at 9:8-18 ("*the display…indicate[s]…abnormally low flow…indicating that more than the usual quantity of gas is passing though the meter*.") (emphasis added); A1045 at ¶ 52.

The Board found, and Pentair does not dispute, that a diminished fluid flow rate (low or no flow) by virtue of *too little water or too much gas* is a loss-of-prime condition. A30 (citing A214 (citing A67) & A1034 at ¶¶ 29-30); *see also* A936. To determine if there is a loss-of-prime condition at the pump due to such a flow abnormality, the controller of Rasmuson compares the current flow value to a set flow value, which is a reference point for the minimum flow rate. A1150 at 1:14-20 & 1:58-64; A1152 at 5:41-61 & 6:62-67; A1149 at 9:26-30; A1045 at ¶ 52.

The minimum flow value is a threshold below which the pump has lost its prime, and above which the pump is primed. A1045-A1046 at ¶ 53. If the flow rate is assessed to be above the minimum flow rate, the pump is pumping an adequate amount of liquid and is primed. *Id*. On the other hand, if the flow rate is determined to be below the minimum flow rate, the pump is pumping an inadequate amount of liquid and has lost prime. *Id*. If the controller determines that the pump has lost prime, a red LED is activated, subject first to elapse of a timer. A1152-A1154 at 6:62-67, 7:29-35 & 9:28-30; A1045-A1046 at ¶ 53. The timer of Rasmuson prevents the LED from activating unless the flow rate remains below the minimum flow rate value for a period of time that exceeds the timer value. *Id.*

2. Møller

The disclosure of Møller is fully incorporated by reference in the specification of the '479 patent. A675 at 6:17-26.

As disclosed by the '479 patent, Møller comprises a pumping system including a pump, motor, and controller for assessing and regulating the flow of the pump. A700; A703 at 2:8-16; A705 at 6:18-58; A1048 at ¶ 58. The system of Møller uses *pressure* as the flow variable in several places throughout the patent, but states that these examples also are applicable with *flow rate* as the variable. A703-A705 at 1:15-16, 3:33-39, 5:9-21 & 6:61-7:34; A1048 at ¶ 59. The '479 patent consistently characterizes Møller as demonstrating calculation of "pressure and/or flow rate." A675 at 6:17-32; A1048 at ¶ 59.

The system of Møller provides a desirable operating flow rate to the pump and includes a feedback loop to assess the present flow rate based on the input power to the motor. A700; A1048 at ¶ 60. This assessment is based on a value of the *electrical power* input to the motor as opposed to the electrical current. *See* A703 at 1:42-55. Moreover, the controller of Møller correlates the input power to a delivery variable of the pump, such as flow rate. A704 at 3:33-42; A1048-A1049 at ¶ 61. In so doing, the controller determines the present flow rate based on the input power to the motor. A675 at 6:17-32. The controller then makes decisions

based on the flow rate and instructs the pump accordingly. A703 at 1:8-16; A705 at 6:18-58; A1048-A1049 at ¶ 61.

D. Proceedings Before the Board

1. Hayward's Petition, Pentair's Preliminary Response, and the Board's Decision to Institute Review

Hayward filed an IPR petition against claim 12 of the '479 patent on May 17, 2013. A60. Hayward proposed constructions consistent with the broadest reasonable interpretation for the term "determining a current flow rate based on an input power to the motor" and terms with the root word "prime." A65-A69. Specifically, Hayward proposed constructions of the priming terms in Claim 12 that covered both a lack of adequate prime at system start-up, as well as a loss of prime during operation. In support of these constructions, Hayward noted that U.S. Application Serial No. 10/926,513 (the "'513 application"), the predecessor "parent" application to the '479 patent, specifically addresses "loss of prime" during operation of the pump as the sole disclosure concerning prime. A67-A69 (citing A740-A741 at ¶ 0031). Applying the proposed constructions, Hayward offered fifteen grounds of rejection for anticipation and obviousness.[3] A72-A118. Hayward's arguments were supported by declaration evidence from Dr. Ali Emadi,

[3]Hayward's petition also presented a priority challenge to claim 12 under which certain references became prior art. A64-A65.

a Ph.D. electrical engineer with extensive experience in power electronics and electric motor drives. A1024-A1025 at ¶¶ 6-7.

Pentair submitted its preliminary response under 37 C.F.R. § 42.107 on August 21, 2013. In its response, Pentair did not oppose Hayward's proposed construction of the term "determining a current flow rate based on an input power to the motor." Pentair did, however, challenge Hayward's proposed claim construction of the root word "prime," A141-A142, and submitted its own additional construction of the phrase "the controller indicating a priming alarm if the pumping system is not primed before reaching a maximum priming time allotment." A143-A148. Pentair argued that its constructions illustrate that claim 12 purportedly does not cover loss of prime during motor operation. Consequently, Pentair opposed each of Hayward's proposed grounds of rejection by arguing that the cited prior art fails to "teach the claimed initial priming control concept." A148-A182.

The Board instituted *inter partes* review on November 20, 2013. A203-A224. In its decision instituting review, the Board first addressed the claim construction issues raised by the parties. With respect to the term "determining a current flow rate based on input power to the motor," for which Hayward proposed a construction that Pentair did not oppose in its preliminary response, the Board construed "current flow rate" as "the flow rate belonging to the time actually

passing," A212, and "input power to the motor" as "the electrical power delivered to the motor." A213.

With respect to the root word "prime" as found in claim 12 (*i.e.*, "is primed"/"is not primed"/"priming flow value"/"priming alarm"/"maximum priming time allotment"), the Board concluded that Pentair's proposed construction was too narrow. Specifically, to the extent Pentair attempted "to limit the construction of claim 12 to determining whether the system 'is primed' or 'is not primed' after a predetermined period following activation of the pump," the Board found "no such limitation (1) in the language of claim 12, (2) the description of the claimed invention in the Specification of the '479 Patent, or (3) by differentiation between the language of challenged claim 12 and unchallenged claim 13." A217. Accordingly, the Board construed the phrases "is primed" and "is not primed" as "the primed status of the system at start-up, at restart, or when a loss of prime condition is determined, by comparison of the 'current flow rate' to a 'priming flow rate.'" *Id.* Similarly, the Board construed the phrase "maximum priming time allotment" as "the period between start-up, restart, or the determination of a loss of prime and the determination that the system 'is primed' or 'is not primed'" and to mean "the maximum time allowed for the system to prime after start or restart or after a loss of prime condition is determined." A217-A218.

Applying these constructions, the Board instituted review on Hayward's proposed grounds of obviousness under 35 U.S.C. § 103(a) over the combination of Rasmuson and Møller.[4] A218. In doing so, the Board noted that it was of no consequence whether the rejection is termed Rasmuson in view of Møller or vice versa. A222. The remaining grounds asserted in Hayward's petition were rejected as redundant under 37 C.F.R. § 42.108(a). *Id*.

2. Pentair's Opposition, Hayward's Reply, the Parties' Motion Practice before the Board, and Trial

Pentair submitted its 37 C.F.R. § 42.120 response on February 27, 2014, which largely echoed the themes of its 37 C.F.R. § 42.107 preliminary response. To wit, Pentair again urged claim constructions that would exclude "loss of prime" considerations from the scope of the claim. This time, however, Pentair presented its construction as reflecting "the context of the '479 Patent," a concept it repeated multiple times in its submission. *See* A283-A291. Nevertheless, Pentair did not dispute that the disclosure of "prime" in the parent application exclusively references "loss of prime." *See* A740-A741 at ¶ 0031. Relying upon a declaration from its expert, Dr. Randolph Collins, A2313-A2333, Pentair criticized any construction by the Board that Pentair alleged lacked supporting disclosure in the specification.

[4]Since the Board instituted review on references having effective dates more than one year before August 26, 2004, it elected not to decide the priority challenge raised in Hayward's petition. A218-A219.

Likewise, Pentair's response to the obviousness rejection expanded upon its earlier theories. Again, Pentair contended, through reliance upon Dr. Collins and Dr. Gary Wooley, that the combination of Rasmuson and Møller does not disclose the priming limitation *at initial start-up*. Pentair further argued that a modification of Rasmuson by Møller is not an improvement, A306-A308, and would render Rasmuson both impermissibly changed and unsatisfactory for its intended purpose. A308-A313. Pentair additionally asserted that Rasmuson teaches away from claim 12, A313-A316, and is non-analogous art. A316-A319. Pentair also claimed that a combination of Rasmuson and Møller does not establish a *prima facie* case of obviousness under any of the six examination guidelines in the MPEP, A319-A331, that Rasmuson and Møller teach away from one another, A333-A335, and that the petition relies upon hindsight, A331-A333.

Hayward filed its reply to Pentair's 37 C.F.R. § 42.120 response on June 11, 2014. In its reply, Hayward defended the Board's claim constructions as they concern the concept of "prime." First, with reference to the text of claim 12 itself, Hayward pointed out the lack of any distinction between *acquisition of prime* and *loss of prime* in the claim language as well as a lack of any requirement of the order in which the steps recited in claim 12 must be performed. A374. Hayward also identified portions of the specification where the consideration of the priming flow value can occur both before – and notably after – normal operation. A375

(citing A676-A677 at 8:65-9:7 & 9:19-24). Hayward similarly argued with respect to the "maximum priming time allotment" claim term that there is a lack of any basis to limit the process to commencing only upon start-up. A376. Finally, Hayward dismissed Pentair's notion that a lack of enabling disclosure in the specification is a basis to limit the scope of a claim term. *Id*.

On the issues of obviousness, Hayward observed that Pentair failed to dispute that Rasmuson disclosed "priming control" under the Board's constructions. A376-A377. Indeed, Hayward cited admissions by both of Pentair's experts that Rasmuson discloses monitoring for loss of prime. A377. Hayward also acknowledged Pentair's failure to dispute that Møller teaches the use of input power as a proxy for flow rate. A378. Hayward then rebutted each of Pentair's arguments in its response concerning the propriety of the combination of Rasmuson and Møller through reliance on the teaching of these and other references, the declarations of Hayward's experts Dr. Hamid Toliyat and Robert Schaaf, as well as the admissions of Pentair's own experts. A378-A388.

The parties thereafter submitted motions for observations on cross-examination. A joint trial, considering arguments both from the instant proceeding as well as the IPR giving rise to companion case *Pentair Water Pool and Spa, Inc. v. Hayward Industries, Inc.*, Case No. 15-1409, was held on August 15, 2014.

3. The Board's Final Written Decision

The Board issued its final written decision on November 19, 2014, citing substantial evidence upon which it relied to reach its claim constructions and determine that claim 12 is obvious over the combination of Rasmuson and Møller.

a. Claim Construction

With regard to claim construction, the Board applied the broadest reasonable interpretation standard of 37 C.F.R. § 42.100(b) to the disputed priming-related terms of "is primed," "is not primed," and "maximum priming time allotment." A16-A17.

As to "is primed" and "is not primed," the Board addressed and rejected Pentair's arguments that claim 12 should exclude a loss-of-prime scenario. For instance, the Board recited Pentair's arguments that claim 12 must be understood to fall within the example of Figure 4A and columns 8-9 in the specification. A18-A20. The flow chart of Figure 4A, which depicts the operation of a controller of a pumping system, is reproduced below:

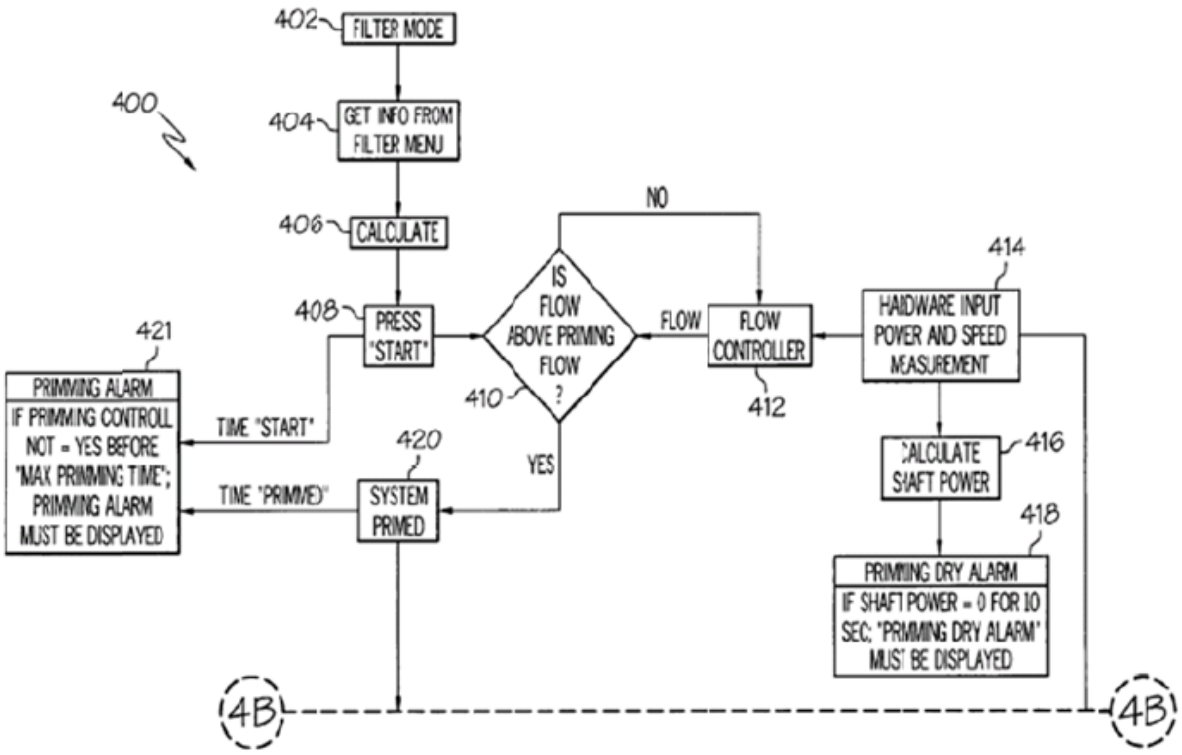

FIG. 4A

Specifically, the Board noted Pentair's interpretation of process 400 disclosed in Figure 4A as permitting process 400 to proceed to the priming alarm step 421 *only after* step 408 – the "PRESS START" step – is performed. A18. The Board further considered Pentair's argument that claim 12 should be limited to Figure 4A and the associated discussion in columns 8-9 of the specification, which provide this disclosure of step 421 proceeding after the PRESS START step 408, and that any other reading would be unsupported by the specification. A19-A20.

The Board, however, also considered Hayward's arguments that the specification is not so limited because (a) it discloses consideration of the priming flow rate at step 410 both before normal operation of the pump's flow control at

step 412 *and after* the normal operation of the pump's flow control within step 412; and (b) according to the figures, the process flow may proceed uninterrupted *from* step 412 *to* step 410 to make the priming flow comparison. A20. Indeed, there is an arrow pointing into step 412 from step 414. Finally, the Board noted that Pentair did not contest that claim 12 lacked an express definition of "to prime" or "priming." A17-A18.

Ultimately, the Board concluded that "claim 12 does not make[] clear by its language that the word 'primed' should be understood to mean 'initially primed' or primed after the pressing of a 'Start' button." A21. The Board expressly relied upon Pentair's admission at trial that "the claim language does not mention the term 'initial' or 'start,'" *id*. (citing A594-A596 at 38:23-40:6), and despite Pentair's arguments to the contrary, found "that the Specification does not express a clear intent to deviate from the plain meaning of the word 'primed'" as is required under Federal Circuit precedent. *Id*. In addition, the Board found the variants of the word "prime" in embodiments covered by claim 13 to be instructive of the proper meaning of those overlapping terms in claim 12. A22. The Board further found that the proper interpretation of claim 12 is not controlled by the single embodiment disclosed in Figure 4A because to do otherwise would "import unnecessary limitations." A23. Accordingly, the Board affirmed its construction announced in the Institution Decision of "is primed" and "is not primed" as "the

primed status of the system at start-up, at restart, or when a loss of prime condition is determined, by comparison of the 'current flow rate' to a 'priming flow rate.'" *Id*.

Correspondingly, the Board found that a loss of prime occurs when the diminished flow rate is by virtue of *too little fluid or too much gas* in the pump. A30 (citing A214 (citing A67) & A1034 at ¶¶ 29-30). This is consistent with the discussion of "prime" in the parent '513 application which explicitly speaks to "loss of prime." A64-A65 & A67-A69 (citing A740-A741 at ¶ 0031).

As to "maximum priming time allotment," the Board first addressed Pentair's arguments that the Institution Decision's constructions presented conflicting meanings and failed to ascribe a fixed limit to the term. A24. On this point, Pentair persuaded the Board that the "maximum priming time allotment" must have a beginning and an end such that it defines a fixed period. *Id*. The Board was not convinced, however, that this fixed period begins only when the pump motor is first activated or when the "Start" button is pressed. *Id*.

To support this conclusion, the Board again relied upon Pentair's admission that claim 12 itself is not expressly limited to start-up, *id.*, which the Board further found to be consistent with the disclosure of the specification. A24-A25. Specifically, the Board determined that the specification discloses a process depicted in Figure 4A initiated by pressing "Start" at step 408 after which "priming

alarm step 421 implements an iterative comparison (steps 408, 410, and 412) of the flow to the priming flow value until either the flow exceeds the priming flow value or the maximum priming time allotment is exceeded," but was "*not persuaded that it is limited to this process*," as Pentair had urged. A25 (emphasis added). In addition, the Board found the overlapping concept depicted in Figure 4A and Figure 4B to cover a determination of "whether the pumping system remains primed *during operation*," providing further evidence that claim 12 extends to loss-of-prime scenarios. *Id*. Finally, the Board concluded that step 421 "receives input regarding both *initial and operational* priming status." A26 (emphasis added). Thus, while the Board agreed to modify its construction slightly in the manner proposed by Pentair, it refused to adopt Pentair's primary position about limiting the scope to initial start-up. *Id*. Accordingly, the Board construed "maximum priming time allotment" to mean the "maximum time allowed for the system to prime after start or restart or after a loss of prime condition is determined." *Id*.

b. Obviousness

Applying these constructions, the Board turned to the obviousness of the claim by virtue of the combination of the teachings of Rasmuson and Møller.[5] A27. The Board acknowledged the "detailed explanations" and supporting

[5]To the extent Pentair argued for the validity of the claim based on its rejected claim constructions, the Board declared those arguments moot. A27.

declaration of Dr. Emadi that Hayward included in its petition to establish how these references teach or suggest all limitations of claim 12. A27-A28. Namely, the Board detailed Hayward's argument that Rasmuson discloses every element of claim 12 except that Rasmuson teaches using a sensor to directly determine "current flow rate" instead of determining "current flow rate based on an input power to the motor" as recited in claim 12. A28. However, the Board recognized Hayward's argument that Møller provides this missing disclosure, stating "'the input power P, specifically the effective power and not the apparent or reactive power, of the motor is measured as [a] parameter for the actual value of the delivery variable.'" A28 (citing A704 at 3:39-42). And the Board further observed that Møller is incorporated by reference into the specification of the '479 patent. A28-29.

The Board repeated Hayward's arguments that a person of skill in the art would have reason to modify the teachings of Rasmuson in view of the teachings of Møller to achieve the alleged invention of claim 12. A29. Specifically, the Board articulated Hayward's contention that it would have been obvious to "improve Rasmuson's pumping system…by providing a power measuring technique that eliminates 'the need for a probe to be placed in the water, which may become contaminated, or require piping to be cut.'" *Id.* (citations omitted).

The Board next addressed each of Pentair's primary arguments supporting validity: (a) alleged deficiencies in Rasmuson; and (b) sufficiency of reasons to combine Rasmuson and Møller based upon (i) lack of improvement; (ii) the principle of operation and intended purpose; (iii) non-analogous art; and (iv) improper hindsight. A29-A42.

As to the sufficiency of Rasmuson's disclosure, the Board noted Pentair's argument that Rasmuson fails to teach or suggest "a controller indicating a priming alarm if the pumping system is not primed before reaching a maximum priming time allotment" because Rasmuson's "set flow" and "cut-off delay" potentiometer is different than claim 12 and because the low flow in Rasmuson is due to the presence of gas in the oil well instead of the required loss of prime. A29-A30; A304-A305. However, the Board was not persuaded because loss of prime can occur when the diminished flow rate is "due to the presence of too little fluid or *too much gas*" under its claim construction and because Pentair's expert Dr. Wooley admitted that Rasmuson teaches priming control during operation. A30-A31 (emphasis added). Accordingly, the Board found Rasmuson's disclosure of an activated motor cut-off switch for abnormally low flow due to the presence of too much gas to teach or suggest a motor shut down due to loss of prime.[6] A31.

[6]As established in the proceedings before the Board and as discussed in detail below, *see, infra*, Section III.C, Rasmuson expressly discloses an alarm that is triggered if a loss of prime condition persists, *i.e.*, if there is "abnormally low

The Board then addressed Pentair's arguments against the propriety of combining Rasmuson and Møller. A31-A32. The Board recognized Pentair's lack of improvement argument to be that the pumps disclosed in Rasmuson may encounter friction loads that are too variable to have their power reliably correlated to, and therefore used as a proxy for, flow rate as accomplished in claim 12. A32-A33. The Board further noted Pentair's attempt to distinguish Rasmuson through its experts, Dr. Collins and Dr. Wooley, whose testimony concerns the physical distance between the pump and the motor disclosed in Rasmuson. A33. But as the Board found earlier, despite the position of these experts, Rasmuson's disclosure is not limited just to pumps where the motor is at the surface while the pump is located at the bottom of a well. A33-A34. Indeed, the Board noted that Dr. Collins even admitted in his deposition that he had not applied the teachings of Rasmuson to pumps where the motor and pump are located together, such as electrically energized submersible pumps. A33 (referencing A1150 at 1:33-43). The Board further found that Rasmuson also taught that even if the pump and motor are separated, which is not always the case, the separation is not a significant factor. A33-A34. As a result, the Board considered and discounted the testimony of Pentair's experts. *Id*.

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flow…indicating that more than the usual quantity of gas" is present. A1153 at 8:16-2 & 8:43-47; *see also* A1154 at 9:8-18.

The Board also noted Pentair's argument, based on testimony from Dr. Wooley, that using a lookup table for tracking flow based on input power empirically derived from oil well applications (as in Rasmuson) would be impractical. A34. Nevertheless, the Board found this argument sufficiently discredited by Hayward's experts. A34-A35. Namely, the Board cited Dr. Toliyat, who testified that the use of empirical relationships to correlate input power to flow rate were applicable in oilfield applications as evidenced, for example, in three otherwise unapplied prior art references: Ellis-Anwyl, Garmong, and Markuson. *Id*. In addition, the Board cited Mr. Schaaf's testimony that based on his own experience, input power to submersible pumps actually was used as a proxy for flow transducers to calculate flow rate for detecting loss of prime conditions in oil well applications. A35. Accordingly, the Board concluded that one of ordinary skill in the art would have found the measurement of input power for determining flow rate to be a proxy for and an improvement upon the use of a flow transducer.[7] *Id*.

Addressing Pentair's operation and intended purpose argument, the Board acknowledged Pentair's contentions that modifying Rasmuson in view of Møller would "(1) impermissibly change the principle of Rasmuson's operation or (2)

[7]For the same reasons, the Board rejected Pentair's arguments with respect to Examination Guidelines A-D and F of MPEP § 2143. A35.

would render Rasmuson unsatisfactory for its intended purpose," but ultimately found each unpersuasive. *Id.*

As to the first point, the Board rejected Pentair's argument that calculations of flow rate based on input power are not as accurate when used in oilfield applications because it unnecessarily narrows Rasmuson's field of operation. A36. In addition, as described above, the Board viewed such an understanding of Rasmuson (as opined by Dr. Wooley) to be too narrow and contradicted by the testimony of Hayward's experts (Drs. Emadi and Toliyat, and Mr. Schaaf) that "measurement of power input is and has been an accurate proxy for flow transducers to detect loss of prime." *Id.* Moreover, to the extent Pentair relied upon limiting the purported disclosures of Rasmuson to pumps and motors separated by thousands of feet, the Board repeated its earlier finding that Rasmuson is not so limited because it also describes embodiments where the pump and motor are combined in the same submersible pump unit. A36-A37. Thus, the Board found that modifying Rasmuson in view of Møller does not impermissibly change its principles of operation. A37.

With regard to the second point, the Board rejected Pentair's view that Rasmuson's intended purpose is limited just to accommodating a pump for the presence of gas within the crude oil and protecting a pump that has become worn or experienced excessive load due to fouling by solid components or deposits from

the well fluid. *Id*. Instead, the Board found Rasmuson's purpose is more broadly understood to "control pumps experiencing low flow rates of operation." *Id*. Thus, the Board was persuaded that modifying Rasmuson to use the measurement of motor power input to ascertain flow rate instead of or in addition to flow transducers "would not render Rasmuson unsatisfactory for its intended purpose." *Id*.

Next, the Board addressed Pentair's argument that Rasmuson is non-analogous art, and more specifically that it is "neither from the same field of endeavor…nor…reasonably pertinent to the problem faced by the patentee." A38. As reiterated by the Board, Pentair's two attempts to distinguish Rasmuson from the '479 patent were that "Rasmuson relates to downhole pumps joined by a long rod to motors located at the surface" and that "Rasmuson relates to oil rather than aquatic applications." *Id*. With regard to Pentair's first argument, the Board disagreed, finding instead that Rasmuson discloses "multiple pump types" including "electrical submersible pumps," and that the recitation of "pumps" in claim 12 is broad. *Id*. With regard to Pentair's second argument, the Board was not persuaded because it declined to construe the phrase "at least one aquatic application" appearing in the preamble to be a limitation. A38-A39. But, even if it was a limitation, the Board determined that it would not exclude Rasmuson from being analogous art because the specification's definition of "aquatic application"

broadly includes "any reservoir, tank, container, or structure, natural or man-made, having a fluid, capable of holding a fluid, to which a fluid is delivered, or from which a fluid is withdrawn" and the specification elsewhere explains that "liquids other than water are also within the scope of the present invention."[8] A40. Thus, the Board concluded, Rasmuson is analogous art. *Id*.

The Board also rejected Pentair's final improper hindsight argument. The Board reiterated that in light of its claim construction, the problem solved by claim 12 is not limited just to priming control at initial start-up. A41. Moreover, the Board acknowledged Hayward's arguments that Møller teaches a known alternative to Rasmuson's flow transducers, and that Hayward's experts – Dr. Emadi, Dr. Toliyat, and Mr. Schaaf – testified that a person of ordinary skill in the art would have reason independent of the disclosure of the '479 patent to substitute or augment flow transducers in an oil environment for the methods and apparatus taught in Møller. *Id*. Thus, the Board was not persuaded that improper hindsight was employed.[9] A41-A42.

[8]The Board also noted that Pentair's expert, Dr. Wooley, explained that "[a]t times, salt water from the reservoir can come into the wellbore and can even dwarf the amount of oil being pumped." A40 (citing A2338 at ¶ 17 and A1629-A1808). Indeed, Rasmuson explicitly discloses water. A1150 at 1:6-9; A1151 at 4:51-57.

[9]Having resolved the obviousness issues, the Board then addressed and denied Pentair's motion to exclude evidence. A42-A48.

SUMMARY OF THE ARGUMENT

The Board properly construed the claim terms "is primed/is not primed" and "maximum priming time allotment" in claim 12 of the '479 patent as not being limited to *system start-up* of a pump motor. The plain language of claim 12 contains no such restriction, and the specification of the '479 patent, as well as the prosecution history, *e.g.*, the specification of the parent '513 application, establishes that claim 12 more broadly covers loss of prime both at and after initial motor start-up. Furthermore, there is no manifestation in the specification of the '479 patent of any intent to deviate from the plain and ordinary meaning of these terms. The use of the "priming" terms in claim 13 of the '479 patent further reinforces that loss of prime in claim 12 is not limited to system start-up. This conclusion extends to the terms "is primed/is not primed" and "maximum priming time allotment" in claim 12.

When these constructions are applied, the Board's conclusion that claim 12 is obvious over Rasmuson in view of Møller is supported by substantial evidence. The combination of Rasmuson and Møller discloses each element of claim 12. Rasmuson is deficient only to the extent that it fails to teach that determining a current flow rate is "based on an input power to the motor," but Møller satisfies this missing limitation.

More specifically, Rasmuson itself discloses detecting a loss of prime condition, *e.g.*, when a fluid system has low flow due to too much gas, and Pentair's expert Dr. Wooley admits that this loss of prime disclosure in Rasmuson covers motor operation. Correspondingly, the disclosure of Rasmuson teaches a priming alarm. In reaching these conclusions, the Board gave appropriate consideration to the relevant teachings of Rasmuson concerning low fluid flow conditions.

Finally, there is substantial evidence supporting the propriety of combining Rasmuson and Møller. Such a combination does not impermissibly change the principle of Rasmuson's operation or render Rasmuson unsatisfactory for its intended purpose. Such a determination by the Board was not based upon any "prior public use" evidence under 35 U.S.C. § 102. Furthermore, there is no requirement that the teachings of Rasmuson and Møller must suggest the combination and, indeed, neither reference teaches against such a combination.

Accordingly, this Court should affirm the Board's determination that claim 12 of the '479 patent is invalid as obvious.

ARGUMENT

I. STANDARD OF REVIEW

Claim construction is a mixed question of law and fact. *In re Cuozzo Speed Technologies, LLC*, 778 F.3d 1271, 1282-83 (Fed. Cir. 2015). Underlying factual

determinations concerning extrinsic evidence are reviewed for substantial evidence, while the ultimate construction of the claim is reviewed *de novo*. *Id.* (citing *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015)).

Obviousness under § 103 is a question of law based on underlying factual findings. *See Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). The Board's factual findings are reviewed for substantial evidence and its legal conclusions are reviewed *de novo*. *In re Cuozzo*, 778 F.3d at 1282-83. "Substantial evidence is 'such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.'" *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (quoting *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938)). If the record "will support several reasonable but contradictory conclusions, [this Court] will not find the Board's decision unsupported by substantial evidence simply because the Board chose one conclusion over another plausible alternative." *In re Jolley*, 308 F.3d 1317, 1320 (Fed. Cir. 2002). Thus, "where two different, inconsistent conclusions may reasonably be drawn from the evidence in record, an agency's decision to favor one conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence." *Id*. at 1329 (citation omitted); *see In re Applied Materials, Inc.*, 692 F.3d 1289, 1294 (Fed. Cir. 2012); *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000).

II. THE BOARD PROPERLY CONSTRUED THE DISPUTED CLAIM TERMS IN CLAIM 12

Pentair seeks to overturn the Board's constructions of claim terms "is primed/is not primed" and "maximum priming time allotment" for the same reason it presented to the Board: these terms purportedly should be limited to determining priming conditions *only upon initial start-up* of the pool pump motor. Pb. at 19. As the Board recognized, however, the proper construction of these terms is not limited just to initial motor start-up, and such a conclusion is supported by the intrinsic record. A17-A26. More precisely, the Board properly recognized that the claim itself includes no limit to initial *start-up*, and that nothing in the specification requires such a limitation. *Id*. Indeed, to the contrary, the specification includes teachings that specifically suggest claim 12 should not be so limited. *Id*. Moreover, in its final written decision, the Board made valid factual findings in support of its constructions that should be afforded deference on appeal. Pentair's attempts to demonstrate otherwise are nothing more than an effort to import limitations from a selected part of the specification into the claim. Accordingly, this Court should uphold the claim constructions issued by the Board.

A. The Plain Language of Claim 12 Does Not Restrict Priming to System Start-Up

In *inter partes* review, "[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which

it appears." 37 C.F.R. § 42.100(b). As in all matters of claim construction, the analysis begins with the language of the claim itself, which is presumed to have its ordinary and customary meaning to one skilled in the art. *In re Translogic Tech, Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Pentair argues that the scope of claim 12 should be limited to initial system start-up, Pb. at 18 & 24, but it is undisputed that the relevant language of Claim 12 contains no such restriction:

> a controller in communication with the motor, the controller determining a current flow rate based on an input power to the motor, the controller determining whether the current flow rate is above a priming flow value in order to determine whether the pumping system *is primed*, the controller indicating a priming alarm if the pumping system *is not primed* before reaching a *maximum priming time allotment*.

A679 at 14:8-19 (emphasis added). As is evident, claim 12 does not recite that the primed status of the system is determined only at initial motor start-up or that the "maximum priming time allotment" is monitored from motor/pump start-up. *See* Pb. at 30. Rather, claim 12 explicitly recites only "is primed/is not primed," A580 at 4-6 & 10-11, without any limitation whatsoever, including, for example, whether it *previously* had been primed or it was *not yet* primed. *See* A679 at 14:8-19.

More specifically, claim 12 does not discriminate between a start-up state in which there is an initial acquisition of prime, and an operating state in which there is a loss of prime. A374. Furthermore, claim 12 does not recite a limitation either

on the order of the steps, A580 at 11-12, or that the priming flow value must be considered before regular operation. *Id*. Indeed, Pentair admitted as much before the Board when acknowledging that the claim language does not include the terms "initial" or "start." A21 (citing A594 at 23-A596 at 6). Accordingly, the plain language of Claim 12 cannot be the source of any limitation of priming to initial start-up.

Conceding the lack of support in the claim language itself, Pentair instead argues that the ordinary and customary meaning of the term "prime" – as understood by "everyone" – intrinsically is limited to initial system start-up. Pb. at 20-21. However, what "everyone" purportedly understands the phrase "to prime" to mean is irrelevant for proper construction of the disputed priming terms of claim 12. The proper analysis instead is to determine "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by *one of ordinary skill in the art*." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (emphasis added); *see also* A936. Pentair provides no evidence that the definition of "to prime" as known to "everyone" (*e.g.*, a painter or a landscaper) would equate to the understanding of one skilled in the art.[10] Accordingly, Pentair's

[10]Pentair itself defines the person of skill in the art as "an electrical or mechanical engineer having the equivalent of a post-high school education, such as a bachelor's degree in electrical or mechanical engineering, with several years of experience in the design of motor drives and pump systems used in aquatic applications." A2320-A2321 at ¶ 26.

arguments as to the ordinary and customary meaning of the priming terms are meaningless, and certainly provide no justification for overturning the Board's construction.

B. The Specification and Prosecution History Establishes that Claim 12 Covers Loss of Prime During Motor Operation

Failing to establish that the claim terms themselves provide the limitation it seeks, Pentair turns to other text of the patent. But Pentair's criticisms of the Board's analysis of the specification of the '479 patent are flawed as well.

Under the guise of interpreting claims "in light of" the specification in accordance with 37 C.F.R. § 42.100(b), Pentair incorrectly contends that the scope of claim 12 should be limited to initial start-up because that restricted scope is the only disclosure of priming in the specification. Pb. at 23-25. The fallacy of this conclusion, as the Board itself observed, is that the specification in fact includes disclosures of priming beyond initial motor start-up. A20-A21. In Figure 4A, for example, the specification discloses consideration of the priming flow rate at step 410 both before *and after* step 412, A666; A676-A677 at 8:65-9:7 & 9:19-24, and it is "[w]ithin step 412 [that] the flow control process is performed" during normal pump operation. A677 at 9:2-5 (citing Møller). Indeed, Figure 4A depicts that the process flow may proceed uninterrupted from step 412 to step 410 in order to make the priming flow comparison. A666. Correspondingly, step 412 is identified as *following* step 414 by virtue of the arrow connecting step 414 to step 412, which is

indicative of information passing to step 412 during normal operation. *See* A666-A667. Such a comparison occurring *after the pump has already been running* at step 412 clearly evidences a post-commencement loss of prime. Moreover, the specification indicates that pressing "START" at step 408 activates a "*repetitive* operation of the filter mode" initiated at step 402, contemplating successive determinations of prime including after initial motor start-up. A666; A676 at 8:62-64 (emphasis added).

Although not cited by the Board, Dr. Emadi offered a similar interpretation of this disclosure in his declaration accompanying Hayward's initial petition:

> At some point in time after the pump has undergone a repetitive filtering operation of the water, the system checks whether the flow is above a "priming flow value." . . . [D]uring this time period, the '479 Patent indicates that the flow-rate assessment is based on input power as described in these two Møller patents. [] The assessment using the "priming flow value" may indicate that the system has its prime, but, if the assessment indicates to the contrary (e.g., that there might not be prime), then a timer is activated. If the pump does not re-attain its prime within a certain time frame (a "priming time allotment"), an alarm is generated.

A1037-A1038 at ¶ 41 (citations omitted); *see also* A1037 at ¶ 40 (citation omitted). Accordingly, the specification's disclosures are not limited just to initial start-up, as Pentair contends. The proper construction under the broadest reasonable interpretation standard is one that understands these disclosures to cover loss of

prime during motor operation *as well as* achieving prime at initial motor start-up. *See In re Morris*, 127 F.3d at 1056.

In addition, disclosures of monitoring for loss of prime also are expressly found in the prosecution file history, including in the '513 application upon which Pentair specifically relies to establish priority of claim 12. A183-A184. The Board's construction is consistent with how Pentair itself addressed the concept of "prime" in the '513 application, as Hayward noted in its IPR petition:

> Some examples of other functions that can be provided, either alone or in combination with one or more other functions, include using sensory information to determine heater operation and *loss of pump prime*. . . . With regard to the *loss of prime at the pump*, sensory information concerning an event can be obtained and utilized. *Obtaining an indication of loss of prime may be by any sensory means, including but not limited to sensed lack of flow*. . . . Also, the example concerning *loss of prime* can be considered to be an example of an abnormal operation on the water (i.e., no water movement).

A64-A65 (emphasis added) (citing A740-A741 at ¶ 0031). If the '513 application is indeed a proper basis for priority of claim 12, as Pentair itself claims, then the disclosures of this application are instructive as supporting the Board's construction of the priming-related terms in claim 12.

Given that the specification of the '479 patent and the '513 application support the Board's construction of the priming terms in claim 12, Pentair's argument that the Board failed to give proper weight to the dictionary definition for

the phrase "to prime" that was referenced by the Board in its Institution Decision is meritless. Pb. at 21. The Board did not rely upon and had no obligation to rely upon this dictionary definition. Dictionary definitions may shed light on what the customary and ordinary meaning of a particular term is to one of ordinary skill in the art. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317-18 (Fed. Cir. 2005). Yet where, as here, other evidence makes clear how one of ordinary skill in the art would define a term, there is no need to rely upon a dictionary definition. *See Tempo Lighting, Inc. v. Tivoli, LLC,* 742 F.3d 973, 977 (Fed. Cir. 2014) (extrinsic evidence in the form of a dictionary definition has relatively little probative value when there is intrinsic evidence to support the construction of a term). Indeed, it would have been improper for the Board to rely upon a dictionary definition for the phrase "to prime" that is inconsistent with the more reliable and persuasive intrinsic evidence that the scope of claim 12 is not limited to initial start-up. *See id.* (reliance upon a dictionary definition that contradicts the intrinsic evidence constitutes examiner error).

C. There is No Indication in the Specification of an Intent to Deviate from the Plain and Ordinary Meaning of the Priming Terms in Claim 12

But even assuming *arguendo* that the specification's disclosure is limited to priming at initial start-up, such a limitation is legally insufficient to restrict the proper scope of claim 12 because the specification demonstrates no intent to depart

from the plain and ordinary meaning of this claim's priming terms. When applying the broadest reasonable construction "the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d at 1054; *see also* 37 C.F.R § 42.100(b).

But reading a claim "in light of" the specification does not equate to importing limitations "from" the specification. "[R]eading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from reading limitations of the specification into a claim, to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." *In re Prater*, 415 F.2d 1393, 1395 (Fed. Cir. 1969) (internal quotations omitted). Indeed, "to deviate from the plain and ordinary meaning of a claim term to one of skill in the art, the patentee must, with some language, indicate a clear intent to do so in the patent." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1373 (Fed. Cir. 2014); *see also In re Am. Acad. Of Sci. Tech Ctr.*, 367 F.3d 1359, 1365 (Fed. Cir. 2004) (citation omitted) ("[a] patentee 'may demonstrate an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest

exclusion or restriction, representing a clear disavowal of claim scope.'").[11] Accordingly, the proper analysis focuses first upon the specific language of the claim and then looks to whether the specification offers legally and factually sufficient reason to modify the meaning of that language.

It would be insufficient, for example, that the teachings of the '479 patent are limited to determining prime at initial start-up as Pentair contends. As this Court has recognized, and as the Board's decision properly noted, A21, "[i]t is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must clearly express an intent to redefine the term." *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012); *see also In re 55 Brake LLC*, No. 2014-1554, 2015 WL 1610170, at *3 (Fed. Cir. Apr. 13, 2015) (determining that the Board correctly construed claims despite appellant's argument that claim construction should be narrower because examples in specification described narrower embodiments of the claimed invention). Indeed, absent a clear disclaimer in the specification, the broadest reasonable interpretation of a claim cannot be limited to any particular embodiment described in the specification, even when it is the sole embodiment

[11]Indeed, even under the more narrow framework of district court claim construction – where broadest reasonable construction does not apply – a claim will not be limited by the specification unless there is "a clear intention to limit the claim scope 'using words or expressions of manifest exclusion or restriction.'" *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (citation omitted).

described. *In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d at 1369. Correspondingly, any alleged definition in the specification relied upon by the patentee must be done with "reasonable clarity, deliberateness, and precision" to have legal effect. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

The specification demonstrates no intent to modify the plain and ordinary meaning of the relevant terms of claim 12. As the Board acknowledged, A17, Pentair offers no special definition of the priming terms in the specification, let alone one with the requisite particularity to evidence a deliberate intent to modify. Pentair also points to no statement within the specification to indicate that the process depicted in Figure 4A is tantamount to the scope of the invention. Likewise, Pentair fails to identify any disclaimer in the specification or the prosecution history that would indicate a motivation to limit the claim language.

In fact, to the contrary, the specification is littered with indications that its disclosure is not intended to be limiting. For instance, Figure 4A (along with Figure 4B) are referred to merely as "an *example* of a process in accordance with an aspect of the present invention." A674 at 3:26-27 (emphasis added); *see also* A676 at 8:39-42; A677 at 10:45-46. Furthermore, the heading that precedes the description of the embodiments is titled "Description of *Example* Embodiments," A674 at 3:37 (emphasis added) and warns that "[c]ertain terminology is used

herein for convenience only and is not to be taken as a limitation on the present invention." *Id.* at 3:40-41.

Pentair relies exclusively upon its discredited "single disclosed embodiment" theory which is both legally insufficient and, as shown above, factually inaccurate. Just because Pentair alleges to have found some minimal support in the specification for its position is not enough. *In re Morris*, 127 F.3d at 1056 ("the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO's definition unreasonable when the PTO can point to other sources that support its interpretation").

D. Pentair's Remaining Arguments Concerning Interpretation of the Specification do not Support its Position that Claim 12 Covers Priming Only at Initial Start-Up

Pentair also asserts that claim 12 should not be construed "beyond its enabling disclosure," Pb. at 26, but provides no support for this legal position which essentially would require a specification to disclose the teachings of a prior art reference for that reference to be invalidating. Instead, as noted above, *see* pages 36-38, *supra*, absent a clear disclaimer in the specification, the broadest reasonable interpretation of a claim should not be limited to any particular embodiment described in the specification *even when it is the sole embodiment described*. *In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d at 1369. Indeed, limiting the construction of claim terms merely to that which is described in sufficient

detail in the specification to justify enablement vitiates the purpose of 35 U.S.C. § 112, ¶ 1.

The very case that Pentair cites in support of its "enabling disclosure" theory, *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336 (Fed. Cir. 2005), actually illustrates this point. In *LizardTech*, the district court was presented with a single embodiment that only disclosed one particular method for creating a seamless DWT. *Id.* at 1344. Claim 21, however, was directed to creating a seamless array of DWT coefficients generally. *Id.* at 1345. The consequence of this insufficient disclosure was not to limit the scope of the claim, but rather to correctly find the claim invalid under § 112 for lack of written description. *Id.* at 1345-47. Thus, *LizardTech* does not stand for Pentair's proposition that a claim cannot be construed "beyond its enabling disclosure," but only for the well-established precept that a claim may be invalid under Section 112 if its full scope is not adequately enabled by the specification.[12] Accordingly, *LizardTech* does not justify reversal here.[13]

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[12]Because bases for invalidity under 35 U.S.C. § 112 are unavailable in IPR proceedings, these grounds were not addressed by the Board. However, Hayward reserves the right to present them in the appropriate forum.

[13]Even if *LizardTech* were to be interpreted in the manner proposed by Pentair, it is distinguishable because it was decided in the context of a district court litigation where some precedent exists for the proposition that claims should be read to preserve their validity. *See Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999). Any such presumption is absent in proceedings before the PTO. *In re Cuozzo*, 778 F.3d at 1279 (quoting *In re Morris*, 127 F.3d at 1054 ("[W]e reject

Pentair also unconvincingly argues that the specification's use of the term "flow reference" "strongly militates against the Board's interpretation" of the terms "priming flow value/priming flow" in claim 12. Pb. at 23-25. Additional disclosure in the specification using the different term "*flow reference*" in the context of a process depicted in Figure 4B is not a limitation on the meaning of the "*priming flow*" terms appearing in claim 12. Absent compelling affirmative indication, statements in the specification do not serve as limitations of the broadest reasonable construction. *See Phillips*, 415 F.3d at 1317-18. Indeed, as the Board acknowledged, A25, Figures 4A and 4B do not cover two "embodiments," as Pentair contends. Instead, they are coupled to each other and allow for continuous loss of prime detection, *even after start-up*. *See* A666-A667. Pentair's cited authority is inapposite. *See Aventis Pharms. Inc. v. Amino Chems. Ltd.* 715 F.3d 1363, 1374-76 (Fed. Cir. 2013) (reversing a district court's "one-size-fits-all" construction of an identical term used differently throughout the specification when the specification indicated the same term could have different meanings).

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appellants' invitation to construe either of the cases cited by appellants so as to overrule, *sub silentio*, decades old case law. . . . It would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption the patent is valid. The process of patent prosecution is an interactive one.")).

E. Use of the Term "Prime" in Claim 13 Reinforces that the Priming Terms in Claim 12 are not Restricted to System Start-Up

Pentair further faults the Board for "plac[ing] too much weight," Pb. at 26, and "significant weight," Pb. at 28, on claim 13 in its analysis. However, in the context of the entirety of its decision, the Board does not overemphasize the significance of claim 13. Instead, the Board implicitly acknowledges that the other claims in the '479 patent can be a valuable source for determining the meaning of the priming terms in claim 12, *see Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996), because claim terms generally are used consistently throughout a patent. *See Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). The Board correctly determined that "[a]bsent a clear showing in the Specification or in the claim language itself, that patentee intended that the word has different meanings in each claim, we construe the word consistently across claims." A22.

Independent claim 13 employs similar elements of the pumping system of claim 12, but looks for a *loss of shaft power* as indicative of a loss of prime:

> a controller in communication with the motor, the controller obtaining a hardware input including at least one of input power and motor speed, the controller calculating shaft power based on the hardware input, the controller determining *priming status* based on the shaft power, the controller indicating a *priming dry alarm* if the shaft power is at least approaching zero for at least about ten seconds.

A679 at 14:24-31 (emphasis added). As the Board noted, Pentair acknowledged at the Oral Hearing that "the priming alarm could be triggered when the shaft power approaches zero," A20, signifying that the motor "must have been at an operating level." Pb. at 27. In fact, Pentair admits that claim 13 is directed to a loss-of-prime embodiment where "an initial primed state has already been achieved." Pb. at 26-27; *see also* A1034-A1035 at ¶ 32. Pentair identifies no evidence whatsoever in the specification to indicate that the use of priming terms in claim 13, an unequivocal post-initial-start-up environment, should be construed any differently from the priming terms in claim 12. Accordingly, the priming terms in claim 13 further support the Board's conclusion that claim 12 covers motor operation after initial start-up.

F. The Credible Extrinsic Evidence Further Supports a Broader Interpretation of the Priming Terms in Claim 12

Hayward's expert Dr. Emadi, testified that prime, albeit in the context of a loss of prime, "can be understood as a diminished flow rate (low or no flow) by virtue of too little liquid or too much gas." A1034 at ¶ 30. Dr. Emadi tied this understanding to claim 12 of the '479 patent, which he testified encompasses "a non-specific (generic) loss-of-prime (where a 'priming alarm' is utilized)" that is "discussed at Col. 9, ll. 7-25 in the '479 Patent." A1034-A1035 at ¶ 32. Indeed, the Board acknowledged the validity of Dr. Emadi's interpretation of a loss of prime in the context of claim 12, *i.e.*, that loss of prime can occur when there is

too little liquid or too much gas. A30 (citing A214 (citing A67) and A1034 at ¶¶ 29-30).

Importantly, Dr. Emadi's definition of "loss of prime" was not limited to a specific time during pump operation (*i.e.*, the beginning), contrary to Pentair's interpretation of the term "to prime." Pb. at 21. While Pentair's experts offered opinions contrary to the view that claim 12 should be construed to cover "start-up, at restart, or when a loss of prime condition is determined," A23, the Board clearly credited the lack of restriction to initial start-up that Dr. Emadi championed. Indeed, the Board's resolution of any conflict between the various extrinsic evidence is a factual finding that is entitled to deference. *Teva*, 135 S. Ct. at 841-2. Accordingly, the credible extrinsic record also supports the Board's broader construction of the relevant terms in claim 12 to include loss of prime after system start-up.

G. The "Maximum Priming Time Allotment" Claim Term also is not Limited to Initial Start-Up

Pentair concedes that the construction of the "maximum priming time allotment" claim term "should follow suit" with the "is/is not primed" and "priming flow" terms referenced above. Pb. at 29. Thus, for the same reasons, *see* Sections II.A-II.F, *supra*, the "maximum priming time allotment" claim also cannot be limited to initial start-up.

Nevertheless, Pentair continues to unconvincingly argue that "the disclosure of the '479 patent only describes the maximum priming time allotment in the context of the priming alarm step (421), which is triggered by 'start' at step (408)." Pb. at 29. As the Board properly determined, however, the disclosure in the specification is not so limited. A25. The specification mentions this claim term once, and only in the context of step 421 where a priming alarm is triggered "if priming control (i.e., the system is determined to be primed)[] is not reached prior to a maximum priming time allotment." A677 at 9:28-32. The combination of Figure 4A and Figure 4B demonstrates that in filter mode, repetitive monitoring for prime takes place, including at step 421 where input as to priming is received both at initial start-up in step 408 *and* during motor operation as reflected in steps 412 and 414. A666. Thus, the Board correctly construed "maximum priming time allotment" to mean the "maximum time allowed for the system to prime after start or restart or after a loss of prime condition is determined."[14] A26.

Accordingly, Pentair has failed to demonstrate that the Board's constructions of "is/is not primed," "priming flow" or "maximum priming time allotment" are

[14] Unlike here, in *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296 (Fed. Cir. 2011) the specification expressly recited that the invention has a body constructed of a single structure, the invention was expressly distinguished from the prior art based on this feature, and the embodiments disclosed were expressly limited to having a body that is a single piece. As explained above, here, neither the specification, claims, nor embodiments limit the scope of the claim to initial motor start-up.

unreasonable and in contravention of the broadest reasonable interpretation standard. Each of these constructions, therefore, should be affirmed.

III. SUBSTANTIAL EVIDENCE SUPPORTS THE BOARD'S DETERMINATION THAT CLAIM 12 IS OBVIOUS IN VIEW OF THE PRIOR ART

The Board correctly determined that claim 12 is obvious over Rasmuson in view of Møller, A42, and substantial evidence supports this determination.

A. Substantial Evidence Supports The Board's Conclusion that Rasmuson Detects a Loss of Prime

As an initial matter, the Board properly concluded that "loss of prime" is a condition in a fluid pumping system where the diminished flow rate is by virtue of too little fluid or too much gas. Specifically, the Board found that "loss of prime may be due to the presence of too little fluid or too much gas in the pump." A30 (citing A214 (citing A67) and A1034 at ¶¶ 29-30). Pentair does not dispute this finding of the Board.

Furthermore, the record is clear that Rasmuson discloses differentiating whether a fluid system has an abnormally low flow rate by virtue of too much gas as compared to the typical and/or temporary fluctuation of gas. Rasmuson first states:

> It is well known that the potential flow conditions of oil wells tends to fluctuate significantly and sometimes rapidly due to the presence of *gas* within the crude oil flowing from the formation. Thus, well pumps that are located in the downhole environment are often subject to

> temporary low liquid discharge resulting from the presence of *gas* that migrates to the well along with the well fluid.

A1150 at 1:55-61 (emphasis added). A loss of prime may result not from fluctuation of the presence of gas, but rather by virtue of *too much* gas. To address such adverse conditions, Rasmuson expressly discloses that it is desirable to continuously sense flow conditions and to actuate an alarm in the event that the pump discharge rate falls below a predetermined set point.[15] A1150 at 2:27-39.

Correspondingly, Rasmuson discusses pump cut-off (*i.e.*, loss of prime) detection functionality that operates after Rasmuson has completed its start-up procedure:

> The pump LED 78 is green, "indicating" that, although flow is below the *set flow rate*, the *time set by the cut-off switch 68* is not exceeded. Also in this condition, the start-up circuit LED 82 is red, indicating the initial start delay, as set by switch 72, has been exceeded and the pump cutoff circuit logic has been activated. The display exhibited by FIG. 3D indicate the possibility that a condition of *abnormally low flow* exists through the downhole meter, indicating a pump or motor problem or *indicating that more than the usual quantity of gas* is passing through the meter.

[15]Pentair incorrectly states that "Rasmuson's set point is not based on a value associated with the system 'prime' at startup, or 'loss of prime' *during operation*." Pb. at 12 (emphasis added). However, as noted above, the set points of Rasmuson clearly are associated with handling a loss of prime during operation of the pump. Rasmuson discloses that the set-point correlates to "abnormally low flow" by virtue of too much gas. A1154 at 9:8-18.

A376-A378 (citing A1153 at 7:23-27 & A1154 at 9:8-18 (emphasis added)). Thus, it is clear that Rasmuson teaches detecting low flow induced by abnormal gas conditions in the pump (*i.e.*, loss of prime) and remedying such conditions, and substantial evidence supports this conclusion. *See* A30-A31; *see also* A1782-A1783 at 152:1-153:8; A1145.

Pentair attempts to confuse matters by arguing that the low flow conditions detected by Rasmuson could be caused by "pump wear, excess load due to fowling or deposits…or other conditions" and that Rasmuson purportedly "expressly seeks to avoid shutting down due to the presence of gas." Pb. at 35. However, these arguments are misguided. It is clear from the disclosure of Rasmuson that excessive gas in the system (coupled with low flow) could indeed be the triggering event for turning on the visual alarm and shutting down the pump. Rasmuson expressly discloses that the outer circuit board 52 includes a cut-off delay adjustment in the form of a potentiometer 68 that can be adjusted to set the cut-off delay from 1-10 seconds, for example. A1153 at 7:6-14. Furthermore, Rasmuson states that this delay can be adjusted to accommodate for varying levels of *gas* in the pumped liquid:

> The desired cut-off delay is dependent on the amount of gas in the flow through the downhole flow meter and should be adjusted accordingly. This adjustment can be optimized in the field by observing the combined effect of 'set flow' and 'cut-off delay.' For example, a well with a low *gas* content stream, the setting may be as low

> as one second. *In that case, the flow rate through the flow meter must remain below the flow rate cut-off set point for a continuous period of one second as defined by this setting for the motor cut-off switch to be activated*.

A1153 at 7:23-32 (emphasis added); *see* A30. It is clear from this excerpt in conjunction with Rasmuson's discussion of Figure 3D (*see* A1154 at 9:8-18) that there is a correlation in Rasmuson between flow rate and excess gas in the fluid (*i.e.*, loss of prime), such that power to the pump is cut off if the flow rate is unacceptably low due to too much gas for longer than a pre-set period of time.

Despite Pentair's arguments (including the "demonstrative" graphic on page 38 of its brief that cites to no authority and is nothing more than inaccurate attorney argument), Pentair cannot escape the conclusion that Rasmuson detects for a loss of prime (*i.e.*, diminished flow by virtue of too much gas in the pumped fluid), displays a visual alarm, and shuts off the pump if such conditions exist for more than a predetermined period of time. Given these teachings, substantial evidence supports the Board's conclusion that Rasmuson teaches detecting a loss of prime.

B. Pentair's Expert Admitted That Rasmuson Teaches Priming Control During Pump Operation

As the Board observed, Pentair's own expert Dr. Wooley admitted that Rasmuson teaches priming control that occurs during *operation* of the pump. A30-A31. In his deposition, Dr. Wooley identified a disclosure in the abstract of

Rasmuson relating to the set flow and cut-off delay control logic. A1782-A1783 at 152:1-153:5. He was then asked whether he considered this disclosure to constitute "a priming control that won't happen when the pump is first started," and he answered in the affirmative. A1783 at 153:6-8. Accordingly, Dr. Wooley candidly admitted that Rasmuson discloses a priming control that operates after initial start-up.

Indeed, this clear acknowledgement by Dr. Wooley that Rasmuson discloses a priming control corresponds to a portion of Dr. Wooley's declaration cited by Pentair in which Dr. Wooley observes, in essence, that Rasmuson teaches loss of prime through use of the equivalent term "gas within the crude." Pb. at 41; A2340 at ¶ 29. As the Board properly noted, A30, a presence of diminished flow by virtue of too much gas in the fluid encompasses a loss of prime. Thus, Dr. Wooley's acknowledgement in his declaration of "gas in the crude" as a condition toward which the invention of Rasmuson is directed only reinforces his unequivocal admission that Rasmuson discloses detecting a priming control.

C. Substantial Evidence Supports the Board's Determination that Rasmuson Discloses a Priming Alarm

Pentair's argument that Rasmuson does not disclose a priming alarm, Pb. at 42-44, defies the express teachings of Rasmuson. It is abundantly clear from the record that Rasmuson does, in fact, disclose a priming alarm.

Pentair misconstrues the disclosure of Rasmuson relating to light-emitting diodes ("LEDs") that are activated when a loss of prime condition persists for longer than a pre-set period of time. In this regard, Rasmuson states: "Pump LED: -- When the pump LED [78] is showing green, the pump circuit is on and the pump motor is operating. Conversely, when the pump LED is showing red, the pump motor is off, *and pump stoppage was activated by the time delay motor cut-off logic*." A1153 at 8:16-21 (emphasis added). Correspondingly, Rasmuson discloses: "[i]f LED 80 is showing red, then a pump abnormality exists which is indicated by *low flow in the flow line 28*. In this case, pump shut-off will occur automatically when the adjust settings of the potentiometers 64 and 68 have been exceeded." A1153 at 8:43-47 (emphasis added). Indeed, as previously established, one cause for stopping the motor of the pump in Rasmuson is the presence of diminished flow by virtue of too much gas in the pumped fluid, *i.e.*, *a loss of prime*. A1153 at 7:23-35; *see also* A1154 at 9:8-18 ("abnormally low flow" by virtue of "more than the usual quantity of gas [] passing through the meter").

These teachings of Rasmuson expressly disclose that the Flow LED 80 glows red when a low flow condition exists, and if that condition persists for greater than a pre-determined amount of time (as set by the potentiometers 64, 70), the pump is shut off and the Pump LED 78 turns red. Contrary to Pentair's assertion, it also is clear from this disclosure that the system of Rasmuson does not

illuminate the LED 78 red until *after* a predetermined period of time has expired, *i.e.*, until the abnormally low flow rate – which could be caused by too much gas in the liquid and indicated by LED 80 glowing red – persists for greater than a pre-set time period as set by the potentiometers of Rasmuson. *See also* A1154 at 9:26-30. This is precisely what claim 12 requires by way of a priming alarm, and there is substantial evidence in support of the Board's determination of invalidity.

D. The Board Properly Considered the Relevant Teachings of Rasmuson Relating to Low Fluid Flow

Pentair attempts to downplay the teachings of Rasmuson relating to loss of prime detection by pointing to other teachings in Rasmuson concerning potentially detrimental fluid flow conditions. Pb. at 44-47. However, the concept of "discrimination" in connection with pumping systems renders Pentair's argument in this regard misguided. A power sensor can be used as a proxy for flow rate for loss of prime control while, at the same time, providing enhanced discrimination capabilities for differentiating *overload conditions* (too much power) representative of paraffin, sand, scaling, and pump breakage from *underload conditions* (too little power) representative of loss of prime. *See* A384-A386.

Furthermore, Pentair's position that the Board simply should have ignored the loss of prime teachings of Rasmuson because the system of Rasmuson can sense and react to other adverse conditions affecting fluid flow such as component wear, sludge, and other damage also should be rejected. Pb. at 44-45. Even

though Rasmuson discloses several potential conditions that could result in a state of low fluid flow, Rasmuson is clear that gas in the fluid is one such identifiable condition to which it can and does react. *See* A1150 at 1:55-61. It is sufficient if any one of these adverse system conditions in isolation demonstrates loss of prime after initial start-up. *See In re Inland Steel Co.*, 265 F.3d 1354, 1361 (Fed. Cir. 2001) ("The fact that [the reference] teaches that annealing in addition to adding antimony produces optimal results does not negate [the reference's] additional teaching that adding antimony is effective even in non-annealed steel"); *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 807 (Fed. Cir. 1989) (A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments); *see also Upsher-Smith Labs. v. Pamlab, LLC*, 412 F.3d 1319, 1323 (Fed. Cir. 2005) (reference disclosing optional inclusion of a particular component teaches compositions that both do and do not contain that component). The fact that all such adverse system conditions may not be manifested by gas causing the low flow is no reason to disregard Rasmuson's "loss of prime" teachings. Simply put, the importance of Rasmuson is its express disclosure of monitoring for a loss of prime (*e.g.*, *too much gas* in the crude), indicating a priming alarm to a user, and shutting down the motor if the condition exists for longer than a pre-determined period of time.

E. The Board Properly Combined Rasmuson with Møller

Combining Rasmuson with Møller would have been a logical approach by one of ordinary skill in the art, and it was reasonable for the Board to reach this conclusion. The input power sensing technique of Møller improves the system of Rasmuson by substituting for the mechanical flow sensor of Rasmuson. Such a modification does not impermissibly change the principle of Rasmuson's operation or render Rasmuson unsatisfactory for its intended purpose. To the extent Pentair offered contrary evidence, the Board properly discounted the testimony of Pentair's experts. A33-A34; *see Teva*, 135 S. Ct. at 841-42. Accordingly, the Board correctly combined Rasmuson with Møller and concluded that claim 12 is obviousness.

Pentair's argument that Møller's control technique does not "mesh" with, and would not work with, Rasmuson's system is entirely at odds with the substantial evidence presented to and considered by the Board. Pb. at 47-53. As established before the Board, the use of empirically defined relationships between input power and flow rate are understood to be desirable in the analogous art of oil well applications for identifying a loss of prime in a well producing oil. *See* A34-A35 & A38-A40; *see also* A384 (citing ((A1491-A1493 at ¶¶ 5-9 & A1497-A1513 at ¶¶ 27-62) (citing A693-A706; A1485-A1486; A1595-A1609; A1610-A1619; A1620-A1628)) and (A1576 at ¶ 2; A1577 at ¶ 3; A1579-A1589 at ¶¶ 10 & 13-

27)). Such desirability stems from the fact that these techniques can be used as a less-invasive alternative to a flow transducer[16] and/or to *supplement* the flow transducer. Indeed, both of Pentair's experts testified that redundancy of sensors is *desirable* in oil well applications. A2346 at ¶¶ 46 & 47; A2332 at ¶ 66.

Likewise Hayward conclusively established that it is well known that input power can successfully operate in a single system as a proxy for flow rate in an oil well application to determine a loss of prime event, *i.e.*, an *underload* (too little power), and also to detect a pump *overload* (too much power) by virtue of paraffin, scaling, sand, or pump breakage. A384-A385 (citing ((A1491-A1493 at ¶¶ 5-9; A1497-A1498 at ¶ 27; A1503 at ¶ 38; A1507-A1508 at ¶¶ 51-52; A1510 at ¶¶ 55-56) (citing A693-A706; A1485-A1486; A1595-A1609; A1610-A1619; A1620-A1628)) and (A1580-A1581 at ¶ 13; A1584-A1586 at ¶¶ 20, 21 & 23-24; A1588-A1589 at ¶ 27)). Indeed, it is a routine and standard technique to create empirical relationships between the power signature and the flow rate, such that loss of prime can be readily discernible from the input power when the flow rate has unacceptably diminished by virtue of too much gas. A385 (citing ((A1491-A1493 at ¶¶ 5-9; A1504-A1510 at ¶¶ 45-49 & 51-56; A1512-A1513 at ¶¶ 60-63) (citing A693-A706; A1485-A1486; A1595-A1609; A1610-A1619; A1620-A1628)) and (A1576 at ¶ 2; A1579-A1589 at ¶¶ 10 & 13-27)). Even Dr. Wooley acknowledged

[16] Rasmuson discloses that an example placement of the sensor would be at the pump discharge. A1151 at 3:16-26.

that look-up tables (*e.g.*, tables that include an *empirically-defined correlation* between one parameter (such as input power) and another parameter (such as flow rate)) could be used in swimming pool and spa environments. A384 (citing A1772-A1776 at 142:6-146:5; *see also* A512-A516 & A520-A524; A418-A419).

Thus, one of ordinary skill in the art could easily incorporate the input power sensing capabilities of Møller into the pump of Rasmuson, and *correlate the sensed input power values to loss of prime flow rates*. What is critical is that one of ordinary skill in the art appreciates the value and simplicity of substituting the flow sensor of Rasmuson with the input power monitoring of Møller, and correlating sensed power levels with loss of prime flow rates. Substantial evidence in the record below supports the Board's conclusion in this regard.

In support of its finding of obviousness, the Board properly relied upon testimony from Dr. Toliyat, Dr. Emadi, and Mr. Schaaf. These experts did not provide "prior public use" evidence under Section 102, as Pentair erroneously argues. Pb. at 53-55. Instead, their testimony relates to the issue of whether one of ordinary skill in the art would be motivated to combine. More specifically, Drs. Toliyat and Emadi persuasively testified as to the technical *feasibility* of substituting input power measurements for flow measurements in an oil environment, and Mr. Schaaf recounted that *he actually had used input power as a substitute for flow measurements*. A1033 at ¶¶ 24-25; A1497-A1498 at ¶¶ 27-29;

A1582-A1584 at ¶¶ 17-19. Indeed, Mr. Schaaf testified that this technique was "standard industry protocol" at the relevant time. A1588-A1589 at ¶ 27. There were no "gaps" in either Møller or Rasmuson that needed to be filled because the combination of the two references teaches each element of claim 12. Accordingly, the Board's reliance on these experts was entirely proper. A27-A28 & A34-A35; *see also* A512-A516; A418.

Finally, Pentair's argument that the references themselves must suggest combining with each other is meritless. Pb. at 55-57. As discussed above, substantial evidence was presented to the Board by way of the testimony of Drs. Toliyat and Emadi and Mr. Schaaf establishing that one of ordinary skill in the art, viewing the teachings of Rasmuson and Møller, would be motivated to combine the two references. Correspondingly, neither reference teaches against combination with the other, as Pentair incorrectly argues. Pb. at 56. Instead, Møller discloses that a flow rate measurement is *not required* where the relationship has already been empirically defined. A387 (citing ((A1500-A1501 at ¶ 34) (citing A705 at 5:9-21))). This is not a teaching away from use of any other sensors, especially where redundant sensors are beneficial. A387 (citing A1500-1501 at ¶ 34). Indeed, both of Pentair's experts believe that redundancy of sensors is *desirable* in oil well applications. A385-A386 (citing A2346 at ¶¶ 46 & 47;

A2332 at ¶ 66). Thus, the combination of Rasmuson and Møller not only is appropriate, but also persuasive.

CONCLUSION AND STATEMENT OF RELIEF SOUGHT

For the reasons set forth herein, the Board properly construed the claim terms "is primed/is not primed" and "maximum priming time allotment" in claim 12 of the '479 patent as not being limited to initial motor start-up. When applying these constructions, the Board's conclusion that claim 12 is obvious over Rasmuson in view of Møller is supported by substantial evidence. Furthermore, there is substantial evidence supporting the propriety of combining Rasmuson and Møller. Accordingly, this Court should affirm the Board's determination that claim 12 of the '479 patent is invalid as obvious.

Respectfully submitted,

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PENTAIR WATER POOL AND SPA v.
HAYWARD INDUSTRIES, INC., 2015-1408

CERTIFICATE OF SERVICE

I hereby certify that on July 2, 2015, true and correct copies of the foregoing Brief on Behalf of Appellee Hayward Industries, Inc. and any supporting documents were filed and served using the court's CM/ECF system on all counsel of record:

Dated: July 2, 2015

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